REMARKS/ARGUMENTS

1. Claims

Claims 1, 3-11, 13, 15-21 and 23-28 are pending in the application. Favorable reconsideration of the application is respectfully requested in view of the following remarks.

2. Claim Rejections – 35 U.S.C. § 102(e)

Claims 1, 3-11, 13, 15-21, and 23-28 are rejected under 35 U.S.C. 102(e) as being anticipated by Krishman, et al. (US 2005/0170783; newly cited art). Applicants respectfully traverse the rejection.

According to the Examiner, Krishnan, as shown in figures 6 and 7, teaches a method and apparatus for estimating a channel response from pilot symbols (training symbols) comprising determining an initial channel estimate and the initial channel estimate is iteratively (repeatedly) processed by performing transformation to obtain the enhanced channel estimate. The enhanced channel estimate is later used for demodulating the received signal. The Examiner also refers to paragraphs [0014], [0029], [0040], [0041], [0054]-[0082], [0086] - [0114], [0137] - [0140], and [0145]. Although the Examiner did not map each of the elements of the present invention to Krishnan, Applicant nevertheless can distinguish Krishnan by showing that there are elements in the claims of disclosed embodiment of the present invention that are not found in Krishnan.

Unlike the disclosed embodiment of the present invention, Krishnan is essentially performing interpolation in the frequency domain, a task well known in the art. Its use in OFDM systems is fairly straightforward. In Krishnan, a set of initial channel estimates in the frequency domain is generated at those subcarriers (or frequencies) on which pilot signals are transmitted. Then, using the assumption that the time-domain response is "band-limited" in time by L taps, Krishnan performs interpolation of the initial channel estimate to all other targeted subcarriers through the use of the well-known, fixed FFT

matrices or submatrices. Interpolation for low-pass signals, whether in time or in frequency, is well-known in the art of signal processing.

However, the use of interpolation in Krishnan is very different from, as in the disclosed embodiment of the present invention, adding intentional-bias to channel estimates for at least the following reasons:

1. In Krishnan, due to the method of interpolation, there are always two groups of frequencies or subbands. One set is where the samples are observed and pilot signals are transmitted, while the other set contains the frequencies where interpolated samples are generated. Depending on the pilot locations in frequency, there may not be any improvement in the initial channel estimate in the first set of subbands, as their "enhanced" channel estimate is just a result of interpolation among adjacent subbands or frequencies. In contrast, the disclosed embodiment of the present invention only requires one group of frequencies with which to work and the novel technique of adding intentional bias improves the time-domain channel estimate over the same set of frequencies.

2. The transformation used in Krishnan is a fixed FFT matrix or its submatrix, as known to those skilled in the art of signal processing and does not depend on the initial channel estimate, the received signal, nor the pilot or training sequence. In contrast, in the disclosed embodiment of the present invention the transformation depends on both the pilot sequence and the initial channel estimate which in turns depends on the received signal.

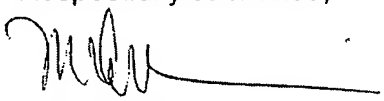
3. Most importantly, Krishnan fails to disclose or suggest the element of adding an intentional bias to improve the initial channel estimate. The estimate used in Krishnan, namely the least-squares (LS) channel estimate, is well known in the art to be unbiased for *additive white Gaussian noise* (AWGN) (see paragraph [0049] of Krishnan) under his assumption that the channel response has L taps. In fact, the LS channel estimate is known to be the *best linear unbiased estimate* (BLUE) estimate of the channel response under the influence of Gaussian noise.

CONCLUSION

In view of the foregoing remarks, the Applicants believe all of the claims currently pending in the Application to be in a condition for allowance. The Applicants, therefore, respectfully request that the Examiner withdraw all rejections and issue a Notice of Allowance for claims 1, 3-11, 13, 15-21, and 23-28.

The Applicants request a telephonic interview if the Examiner has any questions or requires any additional information that would further or expedite the prosecution of the Application.

Respectfully submitted,



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